$6.00

Trichaulax marginipennis
(Macleay)
Flower Chafer

METAMORPHOSIS
AUSTRALIA

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Planning and Organization Meetings

A quarterly meeting is scheduled in order to plan club activities and the newsletter. See BOIC Programme.

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Membership fees are $20.00 for individuals and $25 for schools and organizations.

Aims of Organization

- To establish a network of people growing butterfly host plants;
- To hold information meetings about invertebrates;
- To organize excursions around the theme of invertebrates e.g. butterflies, native bees, ants, dragonflies, beetles, freshwater habitats, and others;
- To promote the conservation of the invertebrate habitat;
- To promote the keeping of invertebrates as alternative pets;
- To promote research into invertebrates;
- To encourage the construction of invertebrate friendly habitats in urban areas.

Newsletter Deadlines

If you want to submit an item for publication the following deadlines apply:
March issue – February 21st June issue – May 21st
September issue – August 21st December issue – November 21st

Cover

Trichaulax marginipennis (Macleay) – Flower Chafer. Painting by Lois Hughes

From the President

Thank you to the considerable number of members who suggested new names for our newsletter and raised various issues for consideration. At our last planning meeting, we finally arrived at a decision and you will have already read this on the front cover. "Metamorphosis" was a popular choice but this is the name of a South African publication so we opted for "Metamorphosis Australia."

Thank you again to all contributors to this our fiftieth edition. Some articles have been held over for publication in December, as our printing budget would have been well exceeded if we included them in this issue. Please no not let that fact deter you from putting "pen to paper" as we are working to increase funding in the future.

By the time you receive this magazine, National Threatened Species Day will have come and gone but I must pay tribute to the increasing number of members who are participating in BOIC displays. The Club will be represented at three separate locations on this occasion. We receive numerous invitations to participate in community events in the Brisbane region and have to decline some of these through unavailability of volunteers. If you are able to spare a day or two in the year, we would love to hear from you. We, in Brisbane, are undoubtedly unaware of events in your local area where BOIC participation may be welcome. Please contact Daphne to discuss ways that the Club can support you with advice and materials should you wish to represent us.

Best wishes

Ross

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Flower Chafer – *Trichaulax marginipennis* (Macleay)

Introduction:-

The Flower Chafers belong to the beetle order Coleoptera which is then divided in the following manner:-

superfamily:- Scarabaeoidea
family:- Scarabaeidae
subfamily:- Cetoniinae

The Cetoniinae boasts 2,600 species worldwide and has120 recorded species in Australia. Most cetonids range in size from 8 to 45 mm and have strikingly patterned metallic colouring. There are 32 genera of cetonids in Australia and New Guinea and 5 species of *Trichaulax*: *T. concinna, T. macleayi, T. philipsii, T. marginipennis* and *T. nortoni.* The *Trichaulax* have velvety hairs on their elytra and legs. All species are flower feeding and diurnal (Britton, 1991).

Identification:-

Trichaulax marginipennis is the largest of the group, being 29 to 35 mm. in length. The female can be distinguished from the male with a slightly broader body and with 3 teeth on the outer edge of the fore tibia (legs), the male tibia bearing only a single terminal tooth. Males also have a longitudinal groove along the mid- line of the abdominal sterna. Females lack this groove. The body is black with shallow sulci (grooves) along the elytra. On emergence from the cocoon these sulci are filled with short velvety grey-white vestiture (hairs), but most are rubbed off whilst moving through decaying wood debris etc and usually only the perimeter vestiture is left.

Flower Chafer (female) – Photo by Richard Zietek

Biology:-

The 1.5 mm eggs are laid in decaying wood in hollows of trees. Trees that I have recorded are *Angophora woodsiana* and *Eucalyptus tidaliae*, but *Eucalyptus maculata, Lophostemon confertus* and *Flacourtia jangomas* have been recorded by other observers. The hollows that were occupied had previously been occupied by termites, so much of the organic material was well decomposed.

The larva is a typical curl grub in appearance, white with numerous bristles and grows to 45–50 mm before it pupates. It builds a cocoon out of chewed wood within the hollow but above the substrate debris. Cocoon size is usually in the order of 45 mm long by 30 mm wide with an oval or spherical shape. Normally the grubs pupate at the end of November and adults emerge late February/early March around Brisbane, but adults have been encountered further north at Marlborough, in December.

Cocoons of Flower Chafer larvae – Photo by Richard Zietek

Adult beetles have been collected on bloodwood blossom (usually *Corymbia intermedia*) at the tops of the trees. Females do not lay many eggs. I estimate 12 – 16 eggs each and only 4 to 6 of these seem to mature in any one hollow. This is possibly why it is not a common beetle. *T. marginipennis* has a recorded range from southwest of Ingham to Dubbo in central western N.S.W. (Hiller, 1990). It seems to prefer dry sclerophyll forest and usually flies on the hottest days. Adults do not seem to be present every year in spite of the grubs only taking 9 months from egg to pupation. Other factors probably influence their extended pupal duration.

References:-

1. Britton, E.B. 1991. Coleoptera : in *The Insects of Australia* (CSIRO) Vol. 2 Cetoniinae p.631 Pub.: Melbourne University Press.
2. Hiller, Anthony. 1990. Notes on Systematics and Biology of *Trichaulax* Kraatz (Coleoptera : Scarabaeidae : Cetoniinae) *Australian Entomological Magazine* Vol 17 Part 4. Pub: Entomological Soc. of Qld.

Richard Zietek

Being really "in the poo"

At the end of March, 2006, whilst picking my way carefully between the fairly fresh cow pads in our paddock, I stumbled upon a fascinating sight (depending on one's taste of course) which I found totally absorbing. Having run cattle and or horses for over 30 years or so, I was really surprised I had never witnessed these events before (or since for that matter).

I noticed a lot of activity in one particular cow pad. Right at my feet were two perfectly formed "dung balls" having the finishing touches put to them by beetles with long back legs. When I touched one with a stick, it played dead and, in fact, looked like a spider. There were quite a number of these beetles arriving and departing. They hovered like bees before diving into the dung and burrowing through it.

Eventually one of the beetles laboriously maneuvered a dung ball through the thick kikuyu grass until it was about a metre away from the cow pad and just left it nestled in the grass. On investigating I found three more balls in close proximity to each other. I later found I had walked on and squashed several which were in the gateway. In another cow pad, the process was also being repeated.

A work in progress

On closer inspection of the cow pads, six different beetles were unearthed and I collected them in a container. Some were quite small and made small surface holes and appeared to be tunneling beneath. At the edge of another cow pad was freshly churned earth and digging with a stick revealed a larger beetle in an earthern tunnel, this beetle being the largest of all at 20 mm. Their sizes were 7 mm, 8 mm and 10 mm with two at 12 mm in body length with back legs particularly being quite long. Colours were dark brown or black with one having a bronze-green sheen. Two had horns, one with the horns side by side, the other having them one above the other facing forward. (The ones rolling balls are species of *Sisyphus;* the one with two horns side-

by-side will be *Onthophagus gazella;* the one with horns one above the other will probably be *Onthophagus sagittarius).*

I had a myriad of questions about these beetles, but this observation simply remained notes in my diary and unanswered questions in my mind until Landline (ABC TV) broadcast a segment on Dung Beetles in October 2007. Further information was also obtained from various other sources which unearthed a truly fascinating story. Remarkable insects and doggedly determined men who, to this day, are still passionately researching, breeding and releasing suitable species in different areas of our country.

The problem began when cattle were introduced to Australia during early settlement. In the early 1950's Dr. George Bornemissza came to Australia and worked, for a time, at a West Australia University before joining CSIRO. During his travels throughout the country, the large areas of grazing land polluted by dry cattle dung and the abundance of annoying bush and buffalo flies both concerned and motivated him. He recognized that the wasted resource in the unused cattle dung and the fly problem could both be addressed with dung beetles, whose activities he was fully aware of from his native Hungary. Obviously no one had considered the impact on our environment when cattle were first introduced without the attendant dung beetles to deal with the copious amounts of dung they produce.

The job half done

Australia has between 30 and 400 species of dung beetles which effectively dispose of our native animal dung, but are in no way designed for, or attracted to, the dung of large herbivores.

Dr. Bornemissza finally convinced the many skeptics of the benefits of dung beetles and began a journey that took him around the world. He researched and collected beetle species which would be compatible with our diverse climatic conditions, the animal species producing the dung and beetles which were prolific and easy breeders. It was the most monumental undertaking successfully achieved with any insects in the world.

Fifty species were selected, mainly from African countries, transported to Australia and bred up. Of those 43 species were released, and of those 30species have successfully established. The project began 40 years ago (1967) and could have ended prematurely in 1986 when funding abruptly dried up if not for the dedication of those involved, John Feehan, a former pupil of Dr. Bornemessza, being one such person.

Mr. Feehan began mass rearing, distributing and releasing dung beetles, transporting them all over the country and passionately delivering his message. He explains to the farmers the personal benefits as well as the benefits to the cattle, the environment and the consumer. Below is a list of benefits in grazing paddocks and catchment areas.

- Soil fertility is increased as organic matter and nutrients are returned to the soil, making them available to soil micro-organisms, deepening topsoil.
- Compacted soil is aerated by the beetles tunneling activity which encourages earth worm activity in the tunnels after emergence of the beetles, increasing soil fertility, reducing reliance on artificial fertilizers.
- Aerated soil allows water to penetrate the soil to greater depths and encourages stronger root growth in plants and pasture, increasing drought tolerance.
- Buried dung cannot be washed into dams and water-courses thus reducing water contamination and algal blooms and nutrient run-off.
- Reduces the rank and unpalatable growth of pasture around dung pats.
- Reduces bush and buffalo fly populations because rapid burial of dung removes fly breeding sites.
- Reduces the parasite burden in cattle, resulting in less chemical drenching of cattle and less spraying of chemicals to reduce fly numbers and so reduces the work load and cost to farmers.
- Reduces chemical contamination of our soil and food sources.
- Reduces the nuisance of bush flies in both country and city areas.

I don't know about you, but I'm impressed by the benefits of these industrious little beetles. Now a little about the beetles themselves.

Dung beetles belong to the subfamily Scarabaeinae of the family Scarabaeidae. There are 4,500 species worldwide, most being found in Africa where large herbivorous animals produce copious quantities of dung.

A dung beetle's body consists of a head, a prothorax and an abdomen, the body being covered by a hard cuticle and its transparent wings covered by hard wing covers. The front legs of dung beetles are modified as strong, efficient shovels to help them manipulate the dung and dig holes to bury it. Their size varies from 2 mm to 30 mm in body length and they are mostly dark brown or black in colour.

Dung beetles are strong flyers and can detect the odour of fresh dung over long distances, flying quite a long distance to its source if necessary. They complete the task

at each place before flying to another location. Some dung beetles are wingless and must walk in search of the dung.

Dung beetles are placed in two categories, day flyers and night flyers (which are mostly on the wing at dusk and dawn). Dung beetles feed on the dung of herbivorous vertebrates. The adults feed on the dung fluid, squeezing it in their purpose built mouthparts and ingesting the nutrient rich fluid. However some species also include mushrooms and decaying fruit in their diet. The beetle larvae feed on the whole dung which supplies both fluid and fibre and no other fluids are necessary.

The breeding behaviour of dung beetles falls into 2 main categories – tunnelers and ball rollers. The male and female may work co-operatively to construct the tunnels beneath the cow pat, where the female prepares a nest. Some species lay a single egg in a brood ball while others lay several eggs in a sausage of dung. Larvae hatch from the eggs and feed on the dung in these brood balls.

The workers

The ball rollers are the other group of dung beetles. The ball is constructed at the dung pad and rolled away, some species burying it before laying an egg in it, while other species laying an egg in it first before rolling it away and settling the balls in amongst the grass, usually in a location which the beetle feels is least likely to be trodden on by a grazing animal e.g. fallen branches, fence posts and coarse grass. A ball of dung is 29 times heavier than the beetle.

The larvae will go through 3 skin changes. Male larvae will develop into minor or major males depending on the abundance of dung available during development. Once development is completed a fully functional beetle will dig its way to the outside world and fly off to begin feeding on a fresh dung pad and begin the process of procreation again.

After learning about dung beetles, I have a far greater respect and admiration for these wonderful little recyclers and if you thought living in the city or suburbs excluded you from the benefits of these insects, here are some more facts. Some city councils have even employed dung beetles to clean up the streets of “doggy-do” when footpaths and waterways were being fouled.

Another very pertinent fact is that dung which is buried by dung beetles can store carbon in three different ways.

1. By taking organic matter underground.
2. The aeration of soil resulting from the beetle tunnel system together with the buried dung produces a healthy environment for microbial activity, which in turn stores massive amounts of carbon.
3. The beetles are capable of burrowing through very compacted soils. This enables grass and other plant root systems to penetrate more deeply into zones which could not otherwise be accessed. These new excavations allow grass roots to penetrate deeper into such soils thereby locking up more carbon.

Not even John Deere could make a machine which a farmer could drag around his paddocks every fortnight throughout the year which would place dung underground as efficiently as dung beetles do.

What a blessing these beetles are to us all.

Lois Hughes

My thanks go to Dr. Geoff Monteith, Queensland Museum and John Feehan, Soilcam, both being recognized authorities on dung beetles in Australia, for their reviewing and correction of my article and also to John Feehan for the additional information he supplied. Photos courtesy of John Feehan

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Lucia limbaria, the Chequered Copper, some extra notes

I am including some extra information on the lycaenid, *Lucia limbaria,* further to the articles presented by Andrew Atkins and John Moss (BOIC Newsletter #48), and Wes Jenkinson (BOIC Newsletter #49), and reinforcing or adding to localities previously given.

Lucia limbaria photographed at Corinda, Brisbane, 18.09.2007
Photo by Murdoch De Baar

Following are the locality and year data for specimens in my collection, from Queensland:
Archookoora SF. via Kumbia, 1972 (De Baar, 1977a); Deer Reserve via

Kilcoy, 1981; Kilcoy, 1981; Elginvale SF., via Nanango, 1969; Jimmy's Scrub SF. via Goomeri, 1975; Jimna via Kilcoy, 1979; 20 km west of Dalby, 1994; 5 km south of Augathella, 1975 (De Baar, 1977b); Moggill SF., Brisbane, 1981; Cliveden Avenue Reserve, Corinda, Brisbane, 12 Oct. 2007.
I have specimens from: Gunnedah, NSW, 1992; Canberra, ACT, 1982, also.

The above Corinda record reinforces that given by Mike Barnett. Included is a picture of a Chequered Copper photographed 18 Sept. 2007 from Corinda, and probably a different specimen from the one listed above. The Augathella specimens listed above extended the distribution at that time, westward from Roma.

I have found that larvae pupate loosely (also stated by Wes Jenkinson) on the ground, sometimes beside a rock or rather exposed. If you follow the ant trails, larvae or pupae may be found.

Murdoch De Baar, debaar@powerup.com.au

References:

Atkins, A. 2008. Notes on the Grassland or Chequered Copper, *Lucia limbaria*: Lycaenidae. BOIC Newsletter #48: 4-6.

De Baar, M. 1977a. Butterflies from an area between the Bunya Mountains and Archookoora State Forest , Queensland. Aust. ent. Mag. 3 (6): 115 - 119.

De Baar, M. 1977b. New records for butterflies in Queensland and northern New South Wales. Aust. ent. Mag. 4 (1): 11 - 12.

Moss, J. 2008. Further notes on the Small, Grassland or Chequered Copper (*Lucia limbaria* Swainson 1833). BOIC Newsletter #48: 7-8.

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Butterfly species observed at Stanage April 2008

HESPERIIDAE

Scientific Name	Common Name	Egg	Larva	Pupa	Adult
Badamia exclamationis	Narrow-winged Awl				√
Trapezites petalia	Black-winged Ochre				√
Trapezites iacchus	Brown Ochre				√
Trapezite eliena	Orange Ochre				√
Toxidia peron	Dingy Grass-skipper				√
Hesperilla malindeva	Two-spotted Sedge-skipper		√		√
Hesperilla crypsigramma	Wide-brand Sedge-skipper				√
Taractrocera anisomorpha	Large Yellow Grass-dart				√
Taractrocera ina	No-brand Grass-dart				√
Ocybadistes hypomeloma	White-margined Grass-dart				√
Ocybadistes walkeri sothis	Green Grass-dart				√
Suniana sunias rectivitta	Wide-brand Grass-dart				√

Telicota colon argeus	Pale-orange Darter				√
Cephrenes trichopepla	Yellow Palm-dart				√
Pelopidas lyelli lyelli	Lyell's Swift				√
Parnara amalia	Orange Swift		√	√	√
Probable *Cephrenes augiades sperthias*	Orange Palm-dart				√

PAPILIONIDAE

Graphium eurypylus lycaon	Pale Triangle				√
Graphium agamemnon ligatus	Green–spotted Triangle				√
Papilio aegeus aegeus	Orchard Butterfly		√		√
Papilio fuscus capaneus	Fuscous Swallowtail				√
Papilio demoleus sthenelus	Chequered Swallowtail				√
Cressida cressida cressida	Clearwing Swallowtail				√
Probable *Graphium sarpedon choredon*	Blue Triangle				√

PIERIDAE

Catopsilia pyranthe crockera	White Migrant				√
Catopsilia pomona	Lemon Migrant				√
Catopsilia gorgophone gorgophone	Yellow Migrant	√	√		√
Eurema brigitta australis	No-brand Grass-yellow				√
Eurema smilax	Small Grass-yellow				√
Eurema alitha	Scalloped Grass-yellow	√	√	√	√
E. hecabe	Large Grass-yellow				√
Belenois java teutonia	Caper White				√
Cepora perimale scyllara	Caper Gull	√			√
Appias paulina ega	Yellow Albatross	√			√
Delias argenthona	Scarlet Jezabel				√
Probable *Elodina* species	Pearl White				√

NYMPHALIDAE

Melanitis leda bankia	Evening Brown				√
Ypthima arctous arctous	Dusky Knight				√
Hypocysta adiante adiante	Orange Ringlet				√
Polyura sempronius sempronius	Tailed Emperor	√	√		√

Acraea andromacha andromacha	Glasswing				√
Cupha prosope prosope	Bordered Rustic	√			√
Phaedyma shepherdi shepherdi	White-banded Plane			√	√
Hypolymnas alimena lamina	Blue-banded Eggfly				√
Hypolymnas bolina nerina	Varied Eggfly				√
Junonia orithya albicincta	Blue Argus				√
Junonia villida calybe	Meadow Argus				√
Vanessa kershawi	Australian Painted Lady				√
Tirumala hamata hamata	Blue Tiger				√
Danaus petilia	Lesser Wanderer				√
Danaus affinis affinis	Swamp Tiger				√
Danaus plexippus	Monarch				√
Euploea tulliolus tulliolus	Purple Crow	√			√
Euploea darchia niveata	Small Brown Crow				√
Euploea core corinna	Common Crow				√

LYCAENIDAE

Hypochrysops apelles apelles	Copper Jewel	√	√	√	√
Hypochrysops ignita ignita	Fiery Jewel				√
Arhopala centaurus centaurus	Purple Oak-blue				√
Arhopala micale amytis	Shining Oak-blue				√
Ogyris genoveva	Southern Purple Azure		√	√	√
Hypolycaena phorbas phorbas	Black-spotted Flash	√	√	√	√
Rapala varuna simsoni	Indigo Flash				√
Deudorix diovis	Bright Cornelian				√
Anthene seltuttas affinis	Dark Ciliated-blue		√	√	√
Candalides erinus erinus	Small Dusky-blue				√
Nacaduba berenice berenice	Large Purple Line-blue		√	√	√
Nacaduba biocellata biocellata	Two-spotted Line-blue				√
Nacaduba kurava parma	White-banded Line-blue				√
Psychonotis caelius taygetus	Small Green-banded blue				√
Prosotas dubiosa dubiosa	Purple Line-blue				√
Theclinesthes miskini miskini	Wattle Blue				√
Theclinesthes sulpitius sulpitius	Samphire Blue				√
Jamides phaseli	Purple Cerulean				√

Catochrysops panormus platissa	Pale Pea-blue	√	√		√
Lampides boeticus	Long-tailed Pea-blue				√
Zizina labradus labradus	Common Grass-blue				√
Famegana alsulus alsulus	Black-spotted Grass-blue	√	√		√
Euchrysops cnejus cnidus	Spotted Pea-blue				√
Freyeria putli putli	Jewelled Grass-blue	√	√		√
Probable *Hypochrysops delicia duaringae*	Moonlight Jewel				√

Compiled by Graham Forbes from the observations of Ross Kendall, Andrew Atkins, John Moss, Wesley Jenkinson and Graham Forbes

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ATTRACTING INSECTS and BIRDS TO GARDENS and CONSEQUENTIAL ISSUES

My presentation is on attracting insects, birds, lizards and other fauna to the garden, for the southeast Queensland area, with a view towards a few other consequential issues also. It is a modified presentation originally given 25 May 2001, to the Wildlife Preservation Society of Queensland.

Choice of plants

Plants can be examined by their capacity to provide * a nectar source, * foliage for food, * and / or a fruit source, apart from other issues such as flower beauty, windbreaks etc. Trees are also nesting / resting / hiding places.

Examine if your garden is providing fruit and flowers over much of the year. Perhaps your plants cover periods where there is a shortfall in your surrounding area. This will help to keep wildlife about for longer periods. Some trees stand out for features such as extensive flowering periods, as in *Callistemon polandii*. Nobody wants a tree that flowers while you're at the supermarket.

Your locality may provide restrictions also, such as clay soil structures, tea tree swamps or stony land. You might have a large stone for a backyard as do some residents of Stanthorpe?

Safety should also be a consideration, so choosing giant strangling figs or large gum trees to be placed beside your house, can be a bad decision. Plants that leave prickles to stand on, or grow uncontrollably over your garden, may not be what you want.

Many a gardener has regretted planting mango trees leaning over the roof, resulting in the bombing of the roof, fermenting clogged gutters, squealing flying foxes, and those unmentionable dark splats on the walls.

Some plants to consider (and some attracted fauna)

- *Acacia* (Wattles can be shorter-lived trees) (Tailed Emperor (*Polyura sempronius*)/ leaf-eating; Large Grass-yellow (*Eurema hecabe*) / leaves; Blue Jewel (*Hypochrysops delicia*) / leaves, in company with ants *Crematogaster* spp.; Fiery Jewel (*H. ignita*) in company with Coconut Ants (*Papyrius* sp.). See also comments under 'Some dubious natives'.
- *Alphitonia* Pink Ash (Small Green-banded Blue (*Psychonotis caelius*) / leaves).
- *Brachychiton* (Pencilled-blue (*Candalides absimilis*); Common Aeroplane (*Phaedyma shepherdi*); Tailed Emperor (*Polyura sempronius*) / on leaves; perhaps the Bronze Flat (*Netrocoryne repanda*) on *B. populneus* in some localities).
- *Buckinghamia* Ivory Curl (flowers Dec. to Feb. and attracts a large array of fauna). This tree is originally from north Queensland rainforests.
- *Callicoma* "Black Wattle" (Yellow Emperor Moth (*Opodiphthera astrophela*) / leaves; Ghost Moths (*Aenetus* spp.) / trunk borers -see comments in 'Other considerations').
- *Callistemon* (birds, butterflies, possums / flowers; ringtail possums / leaves) The Scarlet Honeyeater seems very partial to *Callistemon* flowers.
- *Capparis* (Pearl-whites (*Elodina* spp.), Caper Gull (*Cepora perimale*); the migratory Caper White *Belenois java*- all pierid butterflies / leaf eating).
- *Ficus coronata* and *F. opposita* sandpaper figs (Moonbeam butterflies (*Philiris* spp.) / leaves; figbirds / fruit).
- *Grevillea* (many insects and birds including friar birds, parrots and honeyeaters / flowers).
- *Harpullia* (Bright Cornelian (*Deudorix diovis*)/ seed borer).
- *Hibiscus tiliaceus* (Harlequin Bug/ seed feeder).
- *Lomandra* (Matrush) clumps are very popular in landscaping, and support skipper butterflies such as the chunky Splendid Ochre (*Trapezites symmomus*) which is making a come-back into Brisbane.

The skipper *Trapezites symmomus* is re-establishing its territory in Brisbane, because of the popularity of *Lomandra* in landscaping.

- *Melaleuca* (many birds, animals and insects including parrots, butterflies, moths, jewel beetles, bees, are attracted to the bottle-brush like flowers, often wet in nectar).
- *Macaranga* (birds / seed; ringtail possums / foliage and leaf stalks). Silvereyes and figbirds are frequent visitors during seeding.
- *Pipturus argenteus* Native Mulberry (attracts an assortment of birds and insects including the Jezebel Nymph (*Mynes geoffroyi*), Speckled Line-blue (*Catopyrops florinda*) and hawk moth larvae (*Theretra* spp.).
- *Pseuderanthemum* Love Flower - patches in damp shady spots (Australian Leafwing (*Doleschallia bisaltide*) / leaf-eating).
- *Trema* Poison Peach bush (Speckled Line-blue / leaves; figbirds / fruit; Spiny Phasmid (*Extatosoma tiaratum*) / leaves). Orioles, figbirds and silvereyes are often present in amongst the foliage.

Clearwing Swallowtails (*Cressida cressida*) are harder to keep in your yard, but the short visits are magnificent.

Some vines to consider:

- *Cassytha* (dodder vines for wallum and open forest areas) (*Candalides* spp. butterflies; the Whistling Moth (*Hecatesia fenestrata*).
- *Cissus* and other vitaceae (the beautiful day-flying moth *Agarista agricola*, and various hawk moths / leaves). At least 7 species of hawk moths feed on *Cissus.*
- *Melodorum leichhardtii* (previously *Rauwenhoffia*) Fourbar Swordtail (*Protographium leosthenes*).
- *Trophis scandens* (prev. *Malaisia*) (Eastern Brown or Purple Crow (*Euploea tulliolus*).
- *Pararistolochia praevenosa* (Richmond Birdwing (*Ornithoptera richmondia*).

Some dubious natives

White Cedar (*Melia azedarach*) is pretty, but can be heavily attacked by White Cedar Moth (*Leptocneria reducta*). The larvae are covered with irritating hairs that cause itchy rashes.

Bunya Pine (*Araucaria bidwillii*) looks good, attracts cockatoos, but has foliage that is unkind to bare feet, and drops heavy seed pods from unbelievable heights to the delight of your panel beater!

Processionary or tent caterpillars (*Ochrogaster lunifer*) are one of the worst for severe rash– causing hairs, and rest in basal tents on acacia trunks around the Brisbane area, but are found in branch tents on eucalypts around the Toowoomba region. One way to help eliminate the problem is by crushing their white fluffy egg masses on trunk bases during Nov. to Jan. Larval hairs can be stirred up during whipper snipping or lawn mowing. The irritating properties of hairs can last well after larval death.

Paper nest wasps never engender a warm feeling of joy, as their stings are painful, but they restore a balance in caterpillar numbers, and they keep you fit!

Other fauna-attracting features

Humus heaps and branch heaps are good for attracting the Elephant Beetle (*Xylotrupes ulysses australicus*) and flower chafer beetles (for larval development), Bearded Dragons (egg-laying sites) and Blue Tongue lizards (snail-feeding sites). **Note**: snail bait can be bad for Blue Tongue lizards. The above heaps can also attract termites. The large Rhinoceros Beetle (*Haploscapanes australicus*), with an unforked horn on its head, is seldom seen in Brisbane, and breeds in the mulch cores of older trees (see "Conservation aspects"). Besser blocks / bricks laid first before branches are stacked, can provide a refuge for pet-hassled dragons and skinks, and provide egg-laying sites.

An Elephant Beetle (*Xylotrupes ulysses australicus*) imbibes from a scrape on a Poinciana branch. I always enjoy watching their battles for supremacy.

Leaf and branch stacks can help legless lizards, geckos and snakes. It has been said that 'bushy environments are snake havens', but then are you 'safe' on a manicured lawn? Carpet pythons do a good job, and are spectacular to observe.

Some branch stacking can provide larval sites for the brilliant green Stag Beetle (*Lamprima latreillei*)

Rock stacks are good places for orchids, and also refuges for skinks, geckos etc.

Bird baths hung in lower branches are a must, particularly in dry weather. Placing a small container of water under hedges for wandering birds etc. and placement of nesting boxes are good ideas.

Learning to live with chewed leaves etc

Many people have trouble living with chewed leaves and ragged-looking trees. Caterpillars turn to moths and butterflies,\ and these bring birds and lizards etc. Even stick insects (leaf eaters) are amazing creatures. *Pittosporum* etc. can have branches pruned by longicorn beetle larvae, but this can attract black cockatoos. Mistletoes are often shunned even by conservationists. There are 88 species of native mistletoe in Australia, and many totally dependent insects which feed on them. Some people would argue that mistletoes stress trees, and therefore they should be controlled, but then should we control koalas also?

A small patch of unattended grass (including tall grass) does look untidy but will support various skipper butterflies and Evening Brown butterflies. Together with the branch heaps and shaggy trees you'll be the talk of the neighbourhood!

Biodiversity issues

Biodiversity is the species-richness factor. The price you pay for a species–rich area is chewed leaves, pock-marked stems, rank grasses etc. giving you an untidy looking yard perhaps.

Brisbane has a rich skink fauna and an impressive array of insects. In my Corinda suburban garden, 93 species of butterflies, well over 250 species in the order Hymenoptera (includes wasps, parasitic wasps, bees, ants) and this includes nearly 40 species of ants and 50 species of native bees (such as the large black and yellow carpenter bee) and over 80 species of birds have been recorded. It must be noted here that some 160 butterflies and 370 birds have been recorded for Brisbane and its environs and a total of over 200 butterfly species occur in the southeast area of Queensland.

The beauty of butterflies in your yard is worth the chewed leaves. An example is the Varied Eggfly (*Hypolimnas bolina*), but it is understandable that some prefer the name "Blue Moon".

Some plant combinations provide their own rich biodiversity such as *Callistemon* supporting *Amyema*, *Dendrophthoe, Notothixos* and *Viscum* mistletoes which attract birds such as honeyeaters, mickies (or Noisy Miners), silvereyes, parrots, mistletoebirds, possums, jezebel butterflies (*Delias* spp.), azure butterflies

(*Ogyris* spp.), the Mistletoe Day-flying Moth (*Comocrus behri*), the large Mistletoe Emperor Moth (*Opodiphthera loranthi)* and so on.

Acacia can attract a diverse fauna and, apart from previous listings, includes a number of lycaenid butterflies which eat the flower buds, three hairstreaks (*Jalmenus* spp.) that eat leaves, the large stick insect, *Eurycnema goliath*, a number of leaf beetles (Chrysomelidae) and some stem-boring wood moths (*Endoxyla* spp.) and so on.

The eucalypts also attract a large range of fauna including flying foxes, gliders, koalas, birds, reptiles, and many insects. Jewel beetles, flower chafers, butterflies and moths readily come to the flowers and an array of leaf eaters like the huge stick insect, *Acrophylla titan*. The shiny gold Christmas beetle, *Anoplognathus viridiaeneus*, is one of our gems. The world's bulkiest moth, with a wingspan of up to 260 mm, the Giant Wood Moth (*Endoxyla cinereus*) has larvae which bore into the trunks of some eucalypts. Tunnels are generally shorter than might be expected, and a couple of attacks can usually be tolerated by a tree.

Conservation aspects

Exotic plants are a serious burden on our environment. Also nursery–distributed plants should be more stringently controlled.

Priority should be given to native species, but there are some very good exotic plants which don't invade, and do provide nectar and leaves to our wildlife as a supplement, such as *Cassia fistula*.

To assist local native plants and their survival, it is useful to target and cultivate these local species. Your garden and your neighbours' gardens can assist in strengthening corridors.

**Pararistolochia praevenosa* plantings may help support our local birdwing butterflies.

**Planchonia careya* is an important plant for the Rare Red-eye skipper / Ornate Dusk-flat (*Chaetocneme denitza*).

**Wilkiea huegeliana* and *W. macrophylla* are foodplants for the rainforest Regent Skipper (*Euschemon rafflesia*).

Perhaps there is a localised threatened species of insect or lizard which could benefit by the addition of a plant, or the non-modification of acreage. The Australian Fritillary (*Argyreus hyperbius*) is very dependant on permanent patches of native violets, *Viola betonicifolia*. Perhaps your property is suitable for *Bursaria* trees and the copper butterflies (*Paralucia* spp.) which are dependant on them.

Two other nymphalid butterflies which may need a little help around Brisbane are the Chocolate Argus (*Junonia hedonia*), which feeds on *Hygrophila* and the introduced *Hemigraphus* and the Bordered Rustic (*Cupha prosope*), which feeds on *Flacourtia* and *Scolopia*.

Brisbane has some rarities such as the Christmas beetles *Mesystoechus ciliatus* and *Schizognathus apricagger* and are dependant on their environments

remaining intact. Saw-sedges (*Gahnia* spp.) have been badly treated in Brisbane and the southeast corner, and as a consequence the Swordgrass Brown (*Tisiphone abeona morrisi*) have suffered also.

Water features are worth protecting and looking after. The Eastern Water Dragon is making a resurgence in the Brisbane area, but they do need constant water features, as do frogs. Some Brisbane nursery sprinkler systems have been sufficient to keep water dragons happy, but the drought has been a negative for the dragons.

On acreage a gnarled tree with a mulch core can be a safety hazard, but is also important for tree core-dwelling fauna including the huge carab beetle *Hyperion schroetteri* (the predator of the Rhinoceros beetle (*Haploscapanes*) mentioned earlier) and flower chafer beetles such as the large *Trichaulax marginipennis.* These trees also provide nesting sites for gliders, possums, parrots and other fauna, but land development has severely reduced their number in Brisbane.

Property owners should protect scrub pockets on their lot, particularly along creeks, or consider areas with struggling native remnants. It has been shown that fenced / weed-managed plots have produced a rich assortment of natives, particularly where grazing animals are present. These areas are also protected from constant mowing / slashing and other activities. The modification of environments can sometimes be non-negotiable for some species (e.g. a lizard dwelling in rocky outcrops) so that reassembling this disturbed environment may not be a solution. As an example some flightless carab beetles are not always able to reestablish. The balance of ant species may be changed, and we know that ants can play a major role in environments.

An odd dying branch can attract longicorn beetles such as the *Paradisterna plumifera* and are part of our environment.

Some useful exotic plants

This is a highly contentious area where care is needed to ensure that exotic escapees do not further stress our environments. There are a number of non-invasive species which are very attractive to wildlife.

- Golden Shower (*Cassia fistula*) attracts a range of butterflies. Some 'yellows' (pieridae), Tailed Emperor (nymphalidae) and 'blues' (lycaenidae) eat leaves and flower petals.

- Citrus trees support the Orchard, Dainty and Fuscous Swallowtail larvae (*Papilio* spp.).
- Crepe myrtle (*Lagerstroemia indica*) can be a good place to park your mistletoes such as *Amyema conspicuum.* Red and black flashes of the Mistletoebird is a delight.
- Oleander (*Nerium*) will attract Common Crow butterflies (with their silver pupae), and by supporting the mistletoes *Amyema conspicuum* and *Dendrophthoe vitellina* will also attract Jezebel butterflies.
- The blue flowering *Plumbago* will provide the Zebra Blue (*Leptotes plinius*) most of the year. These are very under-rated but very attractive little butterflies.
- Poinciana (*Delonix regia*) is excellent for attracting elephant beetles which scrape patches of bark in order to suck sap.
- Gardenias (*Gardenia* spp.) provide leaves for the larvae of clear-winged hawkmoths (*Cephonodes* spp.)

An Eastern Dusk-flat (*Chaetocneme beata*) hides under a leaf.

- Bookleaf pines (*Thuja* spp.) attract pale-headed rosellas, rainbow lorikeets, king parrots, white cockatoos and corellas to the small conelets; stick insects (*Acrophylla* spp.) will eat the foliage.
- Custard apples (*Annona* spp.) attract some of the *Graphium* spp. butterflies and the Eastern Dusk-flat (Common Red-eye) skipper (*Chaetocnene beata*).

Some obnoxious exceptions

Dutchman's Pipe Vine (*Aristolochia elegans*) not only poisons larvae of birdwing butterflies, but also competes by scrambling over our native plants. Large areas of our rainforest / wet sclerophyll forest around Oakview, Kandanga and Amamoor southwards are suppressed by this vine.

Cat's Claw Creeper (*Macfadyena unguis-cati*) also grows in the above areas and on very steep slopes, where mechanical removal is difficult. It is a serious problem in our region. Attempted removal of these vines will be an expensive environmental issue.

Lamb's Tail or Madeira Vine (*Anredera cordifolia*). This vines and many other weeds seem to serve no useful purpose. It is difficult to eradicate as each stem nodule that gets brushed off will grow into a new vine.

The peppercorn tree from South America, *Schinus terebinthifolia*, growing to 5 or 6 m in height, attracts birds but unfortunately seriously displaces our flora by growing in thickets. Some of our creek edges in Brisbane have been heavily stressed by it.

We have an endless array of escaped weeds in our environments and an exercise to do next time you go 'bush' is to check **how many are actual weeds**.

Other considerations

A number of insects require a combination of foodplants or factors in order to survive. As mentioned above, the Elephant Beetle requires humus / branch heaps for the larval development and tree sap for the adults to imbibe.

Many 'blues', 'jewels', 'azures', etc. require the presence of a certain ant species, as well as a suitable foodplant (larval host plant), to exist. An example of this is the Purple Azure (*Ogyris zosine*) which requires a suitable mistletoe, sugar ants (e.g.*Camponotus claripes*) and nesting and hiding sites.

The Blue Jewel (*Hypochrysops delicia*) larva and its *Crematogaster* ants need acacia branches with borer holes, to hide in during the day.

Ghost moths (*Aenetus* spp.) are spectacular, seldom seen, blue, green and red coloured moths. Otherwise known as rifleborers, owing to the larval stem tunnel, and circular webbed pad, these moths use *Callicoma, Syzygium, Dodonaea, Casuarina* and others. The damage these moths do is not necessarily serious in amongst tree clumps, and exit holes can be calloused over by the tree.

More insects attract more predators such as this dragonfly *Rhyothemis phyllis.*

Remember that Australian plant species may still be exotic to your locality.

If you plant palms, be prepared for defoliation and ragged fronds caused by Orange Palmdarts and Yellow Palmdarts (skipper butterflies).

Neighbourly love bushes

Dendrocnide spp. include a number of stinger trees which if grown along fence lines, will ensure a lasting relationship with your neighbour and his dog "Odd Job"and provide an alternative foodplant for Jezebel Nymphs! I don't know if anyone is willing to supply potted stock

Prickly *Capparis* spp. along the fence line will also retain a loving relationship with your neighbour, his roving donkeys, straying parked cars, and so on and will also increase the pierids in your area.

Murdoch De Baar debaar@powerup.com.au

Photos by Murdoch De Baar

AUSTRALIAN NATIVE BEES #14

WAR AND PEACE - PART 2

In Part 1 of this topic we looked beyond the general perception that our stingless bees are always peaceful and industrious insects and discovered that, while these interesting little creatures are completely harmless to us, they occasionally exhibit aggressive behaviour towards others of their own kind in the form of fighting swarms. This behaviour presents a challenge to stingless beekeepers who naturally want to avoid the loss of so many bees in apparently pointless wars of attrition.

The uncertainty about what factors summon the opposing forces to the battlefield was increased by the belief of some beekeepers that on occasions a hive would engage in civil war. This idea evolved when apparently isolated hives were observed to engage in fighting behaviour. Recent scientific experimentation seems to have thrown cold water on that theory, but a few of us believe that we are still some way from discovering all the reasons for the bees' belligerent activity. Here we will confine ourselves primarily to discussing the two most popular theories for these clashes, 'territorial disputes' and 'home invasions'.

The porcelain frog provided no deterrent to the invading force intent on home invasion.

Amongst stingless beekeepers there is considerable support for the view that some fighting swarms arise out of territorial disputes, particularly when hives

in a collection are positioned too close together. It is as though the bees from one hive resent the encroachment of other bees onto their turf. How much 'turf' a hive needs to feel secure is the subject of conjecture, but early theories suggested that hives should be positioned at least 5 metres apart. However, in natural settings it is not uncommon to find two, three or even more colonies living within a single tree. It is also interesting to note that often a number of artificial hives in close proximity will live in harmony for years, but the introduction of a strange hive into their midst may suddenly trigger a major upheaval. On one occasion, while in the process of moving a *Trigona carbonaria* hive to another site, I left it briefly on the tailgate of my ute in order to install a steel post to position the hive amongst others already at this location. Within minutes a swarm formed up around the back of my vehicle with the bees showing interest, not only in the new hive, but also in some of the small cavities and dark areas on the ute such as the rubber stripping and the ends of roof racks. This type of activity is often reported as being associated with fighting swarms. At such times groups of workers will examine any holes or even dark spots they presumably mistake for cavities in the vicinity of a hive. Needless to say I did not feel the new colony would be welcome at this location and removed it without ever opening the entrance.

Arial combat – an empty hive has been placed on top of the hive under attack in a vain attempt to distract the attacking force.

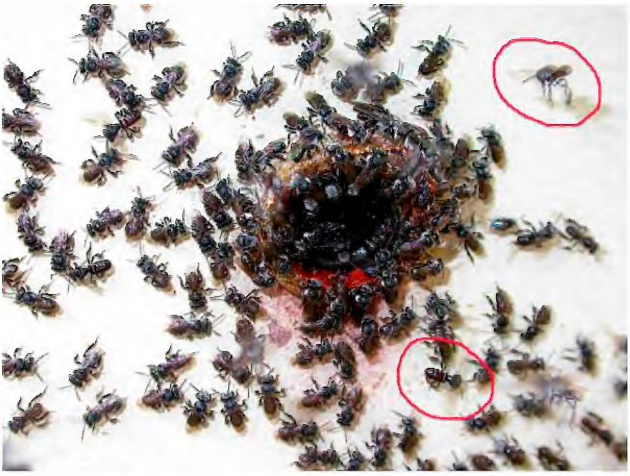
Hostilities may also erupt when one hive tries to take over another. Sometimes referred to as a 'home invasion' this usually involves a strong, belligerent colony attacking a weaker hive. As its name implies, 'home invasion' involves a forced entry by the invading forces and presumably the installation of a new royal family. It has even been suggested that a young warrior queen, intent on establishing her own colony, might accompany the attacking swarm. As the size of the defending force dwindles, an increasing number of bees from the dominant swarm land on the hive and begin forcing their way inside. Fighting pairs of bees may tumble from the hive entrance or be dragged out by a third worker as the battle continues inside the nest. A few bees will position themselves on

tiptoe near the entrance and fan their wings vigorously, presumably releasing pheromones to call reinforcements to the action.

This aggressive behaviour may also cross the species barrier with at least one reported incident of a *T. hockingsi* colony invading and defeating a much weaker *T. carbonaria* nest. Unlike territorial disputes, home invasions are not always seen as disastrous events by the beekeeper. Often weak, barely viable colonies are transformed into strong hives following such an incident, despite the initial loss of bee lives. It doesn't pay to be too sentimental in stingless beekeeping. There is no compassion or pity in the world of insects - only survival of the fittest.

A recent scientific study used DNA 'fingerprinting' techniques to identify the participants in eight *Trigona carbonaria* fighting swarms. It showed that there were always workers from two or more colonies involved in the battle. Typically the swarm formed up close to the entrance of one particular hive and invariably bees from this nearby hive were present in the samples taken. The other bees involved may have been from a neighbouring colony or from some unidentified hive outside the sampling range. In 80% of cases the fighting pairs consisted of workers from these two colonies, but occasionally workers from the defending colony had fought each other to the death, probably mistakenly.

The study also showed that by tricking workers from one nest into returning to another could induce fighting swarms. The defending nest responded to this apparent invasion of foreign workers by mounting an aerial defence typical of fighting swarms. This data strongly supports the 'home invasion' theory yet there are still many unanswered questions about this fighting behaviour.



Home invaders. Note the bees circled are fanning their wings, perhaps signaling with pheromones to draw in reinforcements.

For example what factor stops two relatively equal colonies from continuing their war of attrition until the bitter end? In many cases a successful home invasion does not result from fighting swarms yet the hostilities usually cease well before all the

foragers are lost on either side. Do the combatants come to respect the relative strength of their opponent and agree to a cease-fire? Perhaps a more fundamental question is why is it better defensively to form up into a large flying swarm than simply strengthening the security of the entrance? By swarming out in great numbers at the first signs of possible invasion, is the defending colony displaying its strength and by so doing trying to impress on the potential invader the foolhardiness of proceeding against it? Worker swarms have been known to disperse without fighting which may add some credibility to this proposition.

These and other issues leave the subject open to speculation and experimentation by amateur beekeepers. Important discoveries have resulted from the observations of enthusiasts in many fields. As mentioned earlier this aspect can be one of the attractive features of this hobby.

Things we need to discover include how to identify when a hive is about to engage in fighting behaviour and then how to prevent it, or at least stop it, before it becomes too destructive. In part 3 of this long dissertation on bee warfare (aptly titled War and Peace) we will discuss some of the techniques currently employed by stingless beekeepers to try to bring about a truce between the warring factions, that I promised in the last edition. We may even get a chance to look at those more peaceful swarms I also mentioned.

John Klumpp

Photos by John Klumpp

UNDER THE MICROSCOPE

Further notes on "The osmeterium-type structure found on the larva of *Phaedyma shepherdi*"

Those of you who have been long time members of the Butterfly and Other Invertebrates Club will probably remember an article I submitted in Newsletter # 32, March 2004. I have included the same photograph with this article to refresh everyone's memory.

Since that time, I have also found the same structure on the larva of *Polyura sempronius,* but so far have not managed to photograph it.

Adenosma on *Phaedyma* larva

An American colleague has since been in contact with me and it turns out that the gland has a name! It is called an adenosma and to the best of his knowledge, we are the first to have photographed it.

Head of *Elymnias* larva - undisturbed

Head of *Elymnias* larva showing colouration after being disturbed

Whilst looking under the microscope at a larva of *Elymnias agondas australiana,* I have seen another anomaly that could serve as a defence mechanism. Instead of being a retractable gland under the larva, as is the case with both the *Phaedyma* and *Polyura,* the larva of *Elymnias* has a bright pink colouration under the head, which is exposed when the larva is threatened. I have attached a photograph of this as well, showing the larva in its normal resting position and then with the pink showing as the larva felt threatened. This may just be a flash of colour to deter predators, as a smell was not detected.

Bob Miller

Photos by Bob Miller

AT THE LIGHT TRAP

The Anthelidae

Over the last year and a bit that I have been light trapping, I have had several species of moths in the family Anthelidae come to light. The Anthelidae were once regarded as a subfamily Anthelinae, in the Lymantriidae, which belongs to the superfamily Noctuoidea. Now a family in its own right Anthelidae has been placed in the superfamily Bombycoidea. This may not be the final answer as the latter is regarded as a complex and is far from sorted. Restricted to Australia and New Guinea, the Anthelidae has 74 species described from the former and 20 from the

latter. Many undescribed species are known to exist. The Australian species are placed in two subfamilies the Anthelinae and the Munychryiinae.

Until recently all the species I have had at light traps belonged to the Anthelinae. This is probably not surprising as the Munychryiinae only has three species; *Gephyroneura cosmia*, which is known from the western side of the Atherton Tableland, *Munychryia periclyta*, from south-western Australia and *M.senicula*, which occurs on the Atherton Tableland, and from southern Queensland to Victoria, South Australia and Tasmania. On the 25th July 2008, I had my first Munychryiinae, *Munychryia senicula*, come to light in the middle of a cold snap here at Sheldon near Brisbane.

Munychryia senicula

M. senicula has a wingspan of about 28mm. It is grey with wavy black lines through the forewing and typical of the Anthelidae, has a woolly thorax and bipectinate antennae. The larvae are known to feed on Casuarina, a few species of which occur on my property.

The subfamily, Anthelinae, as opposed to the Munychryiinae, which have a proboscis, are without a proboscis, and as such cannot feed. In Australia the Anthelinae consists of six genera, of which four have come to my light trap. The genus *Anthela* with about 56 species is the largest in the family. I have had five different species come to light.

Anthela acuta group

Anthela asterias

Anthela ocellata female

Anthela acuta seem to be a complex of species and as such is treated as "*A. acuta* group" by some authors. This can be said of several other *Anthela* species. I have had members of this variable group come to light on several occasions. They occur from southern Queensland, through eastern New South Wales and into Victoria. The larvae have been recorded on Musk Daisy Bush, *Olearia argophylla, Acacia* spp. and *Phoenix roebelenii* (Dunn, 1993). *Anthela asterias* has males with a wingspan of about 40mm. The larvae feed on acacia. *A. asterias* varies in colour from a light brown to a dull red. It has come to light on my bush block, west of Bundaberg. *Anthela ocellata* has a distribution from Bundaberg, Queensland to Victoria, South Australia and Tasmania. *A. ocellata* is a variable species with larvae that are

Anthela phoenicias- male and female

Anthela varia female - with eggs

known to feed on grasses. On one occasion I have had a female come to light on a property south of Tenterfield in New South Wales. On the same property *Anthela phoenicias* made an appearance. The males of this species are reddish while the females are yellow. By far the most frequent *Anthela* to visit is *A. varia.* As the name implies this is another variable species and colours can range from yellows to pinks to browns with or without various markings. The females like most are larger than the males (I am talking about moths!) and have a wingspan of about 80mm with males reaching just over 60mm. It has a distribution from southern Queensland to Victoria and the larvae feed on eucalypts.

Chelepteryx chalepteryx - female

Chelepteryx collesi - male

The genus *Chelepteryx* contains two species both of which came to light on a property south of Tenterfield in New South Wales in April 2008. Both male and female specimens of *Chelepteryx chalepteryx* appeared. *C .chalepteryx* is a large species with the wingspan of females reaching 120mm and males 100mm. It occurs on the Atherton Tableland and from southern Queensland to Victoria. The larvae feed on bipinnate species of *Acacia*. *Chelepteryx collesi* is the largest of all Anthelidae with the wingspan of females reaching 160mm and males 140. It is found from central Queensland through eastern New South Wales and throughout most of Victoria. Known as the White-stemmed Gum Moth, its larvae, which feed on eucalypts, are known for their irritating bristles, which can pierce the skin. During pupation, these bristles are broken off and pushed through the wall of the cocoon, leaving a nasty surprise for any creature that handles them.

Chenuala heliaspis

Nataxa flavescens - male

C. heliaspis, the only member of the genus *Chenuala*, also came to light in April on a property south of Tenterfield. This species is known to be sexually dimorphic, where the males and females do not resemble each other. The males have brown fore-wings and reddish hind-wings, while the females are a whitish grey all

over. It occurs from southern Queensland to Victoria and the larvae feed on eucalypts.

The final genus of Anthelinae I have had come to light is *Nataxa*, the species being *Nataxa flavescens*. This is another sexually dimorphic species, with the males being black and white and the females brown and reddish with a creamy white stripe through the fore and hind-wings. It occurs in southern Queensland, New South Wales, Victoria and Tasmania. The larvae feed on *Acacia.*

In writing this article I am indebted to Ted Edwards who looked over some of my images and gave his opinion of the identity of many of the specimens, in particular the *Anthela acuta* group.

Anthela varia - males

Photos by Peter Hendry

Peter Hendry

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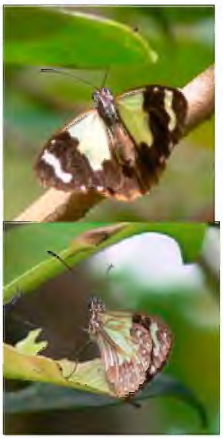
JON'S NEW CALEDONIAN BUTTERFLY QUIZ

More notes on Jon's New Caledonian butterfly photos

It was a delight to see more pacific butterfly photos when I flipped through newsletter #48. The Danaine depicted, with its peculiar *Delias*-like pattern on the upper-side but recognisable taxonomically by its characteristic underside, is *Danaus pumila* – a shade-loving species, which haunts the fern/grass understorey of dense secondary

forests. I doubt it has a common name, or at least one in English! It is quite small, and in flight, together with its reclusive habits, this dainty black and yellowish creature reminded me of *Tellervo* – the hamadryad butterfly of northern Australia and New Guinea. It is a challenging species to photograph as it perches at moderate heights on twigs in dappled light, these two factors in combination confusing the auto-focus on my videocam.

I found *D. pumila* locally common at the La Yahoue River Falls, near Noumea, in early February 2004. Adults were timidly busy in flight at midday, but by mid afternoon seemed more easily approached for a photo shoot, as they had began to roost and settle more often. Incidentally, the La Yahoue River is a wonderful spot to see butterflies – I found 24 species there – this, in my experience, is quite a good tally for New Caledonia! I also saw the butterfly on Tanna (Vanuatu) that same month. Towards evening at 1800h local time, a singleton flew near the ash rim, just beyond the giant tree-fern forest, on the upper slopes of the Mt Yaser volcano. For those fixated on completing a tick-list of 'must see' endemics, the populations in Vanuatu actually belong to a different subspecies (if that is at all meaningful?) And, by the way, if any readers plan to look for it there, I offer a word of caution – just make sure the volcano is not spewing too much fiery magma! If lava bombs are sizzling anywhere near you in the forest, eruptive activity categorised at 'level 2', then find another butterfly playground! An unfortunate tourist or two (including guides) have come back – or not at all – with an indelible memory of their adventure into foolhardiness.



Luthrodes cleotas, the strikingly orange-banded butterfly shown in figures 3 & 4, is absent from Australia but occurs in New Guinea. Although localised, it is often abundant near the larval food plant, *Cycas*, which grows in open forests and as an ornamental in towns and villages. Epidermal scars on fronds hint to the likely presence of larvae. I watched a female in a camping ground, some 3km S of Wao (New Caledonia). In early afternoon, she was highly site-tenacious. Even after repeated disturbance she returned to perch nearby on the same Coconut palm frond, at about 3m above ground, where she overlooked a host plant a metre or so away. Companion males perched, about 2m above ground, on shrubs some 10m away from the same larval host and herself. They occasionally patrolled the neighbouring airspace, interacting with other flying males. The flight is usually slow,

maximising the visibility of the blue and orange wing colours and making its identification easy in the field. My best guess is that the broad orange band serves as warning colouration – aposematism – the cycad is likely a toxic plant.

Beyond New Caledonia, I have seen the species in Port Villa (Efate) and Luganville (Santo) in Vanuatu, likewise flying during February. In addition, in July 2006, I found a male hill-topping at 0830h, near Kokopo, in New Britain (PNG). This male perched, for lengthy periods between patrol flights, on a low shrub growing on a gentle grassy summit in the Queen Emma's cemetery. There seems little reported of its overall flight period, and I have only seen it rarely. Indeed, I saw none in the Solomon Islands (August) or on mainland Papua New Guinea (June) for that matter, two major regions where the butterfly also occurs.

Kelvyn Dunn

WHAT INSECTS ARE THESE?

Photo by Graham Forbes

Photo by Ross Kendall

NOTICE OF NEW BOOK

Mothology: Discover the magic. By Buck Richardson. September 2008. Privately Published. 66pp., full colour, hardback. Available from info@leapfrogoz.com.au for rrp $29.95 postage free within Australia.

This book starts with 11pp of illustrated introduction; pp. 12-39 consists of colour photos of identified live moths from Kuranda, Qld, mostly the larger species and shows approximately 370 species, which is followed by pp. 40-65 consisting of various artistic designs generated by many arrangements of the moth photos. Members will either be interested in the fascinating artistic designs or in the many identified photos of large moths from Kuranda. As it is a privately published and distributed book such notices as this are the only way members are likely to become aware if it. For further information see www.leapfrogoz.com.au ***Ted Edwards***

PUBLICATIONS AVAILABLE FROM BOIC

Add postage and handling costs (in Aust.) – Booklets $1.10 – Posters and Books $5.00 – CD's and DVD's - $2.45

Booklets -

Grow More Butterflies – Featuring butterflies and their host plants - **$5.50**
Butterfly Gardening – How to establish a Butterfly Garden - **$2.20**
Butterfly Host Plants of S.E. Qld. and Nth. NSW – Revised 2008 – A comprehensive list of host plants - **$8.50**
Butterfly Habitat Regeneration Project – Applicable to anyone wanting to establish an area for butterflies - **$3.00**
Swallowtail Butterflies of S.E. Qld. – A companion booklet to the poster - **$4.50**

Posters -

Lifecycles of the Swallowtail Butterflies of S.E. Qld -M'bers **$6** Non-m'bers **$10**
The Butterfly Alphabet Poster – shows letters of the alphabet appearing in the wings of butterflies and moths - M'bers **$23** Non-m'bers **$25**
Dragonflies of Brisbane - $5.00
Discovering Australian Butterflies – a companion to the book - **$9.00**

Books -

Butterflies of Aust. - M'bers **$40** Non-m'bers **$45**
Create More Butterflies – A guide to 48 butterflies and their host-plants for S.E. Qld. and Nthn. NSW - M'bers **$22.45** Non-m'bers **$24.95**
Discovering Australian Butterflies – a simple guide to Australia's most common B'flies - **$29.95**
Dragonflies of South East Queensland - $40
A Guide to Australian Moths – M'bers **$35** Non-m'bers **$40**
Mothology : Discover the Magic – M'bers **$25** Non-m'bers **$30**
Australian Stingless Bees - M'bers **$32.95** Non-M'bers **$34.95**

BOIC Newsletters Nos. 1-45 – CD-ROM - M'bers **$20** Non-m'bers **$35**
Garden on the Wing: Attracting birds and butterflies to your garden **(CD-ROM) - $22**
Butterflies – Lifecycle and Survival Strategies – (DVD) - M'bers **$12** Non-m'bers **$15**
Insects and Spiders: Brisbane and near areas **(CD-ROM) - $40**

CORRECTION

It was reported in our last Newsletter (No. 49) that Zodiac moths had been collected at Redcliffe in March this year. Unfortunately, this report has been found to be incorrect.

Ross Kendall

BUTTERFLY AND OTHER INVERTEBRATES CLUB PROGRAMME

Garden Visit

What: Visit to Ian Ferrier's garden in Mitchelton, and viewing some old collections of moths and butterflies. Followed by a cuppa, then visit to revegetation area for lunch.
When: 10am, Sunday 19th October 2008.

Where: Mitchelton. For address please phone Ian Ferrier (3355 5894, 0419 734 500) or Alisha Steward (3275 1186, 0402 091 863).
Bring: Lunch to eat at the park near the reveg area after the garden visit.
More Information: Ian's garden mainly consists of Australian rainforest species, established in early 1990. The garden includes butterfly host species. Ian's house and garden are on a 48 perch (1200 sq m) block. Visitors may be interested in viewing some old cases of moths and butterflies that Ian inherited from his Grandfather, and also a stunning case of stuffed birds that this gentleman collected over many years. A cuppa on the verandah after/during the inspection can be provided. After the garden visit we will proceed to a nearby revegetation area for some invertebrate spotting. The revegetation of Kedron Brook is proceeding nicely on the edge of Teralba Park with plenty of parking off Osborne Road along the entry to the Mitchie Soccer Club. Members may like to have lunch in Teralba Park. UBD map 138 M2.

Planning and Management Meeting

What: Our planning meetings are informative and interesting. As well as planning our activities we share lots of information. All members are welcome as this activity is also a general meeting of members.
When: Saturday, 22nd November, 2008 at 1.30 pm
Where: Lois and John Hughes' home at Mt. Cotton – address supplied on RSVP
Contact: Lois on 3206 6229 or Daphne 3396 6334 or daphne.bowden1@bigpond.com

A visit to Rainforest Liqueurs and Barung Landcare Nursery

What: Rainforest Liqueurs at Conondale! Meet at Barung Landcare Nursery, Maleny.
When: Saturday, 29th November 2008. The nursery opens at 9am. For those of you interested in purchasing plants or simply having a look around, it will be best to meet at 9am. We plan to leave the nursery at around 10:00am to arrive at Rainforest Liqueurs by 10:30am.
Where: Meet in the Barung Landcare Nursery: 17 Bicentenary Lane, Maleny. The address of Rainforest Liqueurs is 272 Ahern Road, Conondale.
Bring: Lunch, hat, sturdy shoes, insect repellant. Bring a box if you would like to purchase some plants.
RSVP: Please contact Alisha Steward on 3275 1186 or 0402 091 863 or alishasteward@bigpond.com if you plan to attend. I would like to have your contact details in case of any changes.
More Information: This excursion is a repeat of a very successful excursion held a few years ago. We will first meet at Barung Landcare Nursery for ease in getting everyone together (www.barunglandcare.com.au). The nursery has a great range of butterfly host plants. See the website for a plant species list. We can have a look around the nursery and purchase plants if desired. During the last excursion we saw many butterflies at the nursery, including a Macleays Swallowtail! We will then make our way to John and Mary King's Rainforest Liqueurs property at Conondale (approx. 15 minutes drive from the nursery). We can look for aquatic invertebrates in their lovely cobbly creek, and also look out for rainforest butterfly species on the wing.
There are 20 acres of Bunya Pine forest on the property that we can also visit. By that stage we could have some lunch, and we would have worked up a thirst for liqueur tasting. The liqueurs are produced from the fruits, leaves and flowers of native species growing on John and Mary's property. The liqueurs will be available for purchase on the day. See the website for more information: www.rainforestliqueurs.com.au

Disclaimer

The Newsletter seeks to be as scientifically accurate as possible but the views, opinions and observations expressed are those of the authors. The Newsletter is a platform for people to express their views and observations. These are not necessarily those of the BOIC. If inaccuracies have inadvertently occurred and are brought to our attention we will seek to correct them in future editions. The Editor reserves the right to refuse to print any matter which is unsuitable, inappropriate or objectionable and to make nomenclature changes as appropriate.

Acknowledgments

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- Those members who have sent in letters and articles
- Lois Hughes who provides illustrations including the cover
- Daphne Bowden who works on layout, production and distribution
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- Printing of this publication is proudly supported by Brisbane City Council

We would like to thank all these people for their contribution.

Dedicated to a better Brisbane

Are You a Member

Please check your mailing label for the date your membership is due for renewal. If your membership is due, please renew as soon as possible. **Membership fees are $20.00 for individuals and $25.00 for schools and organizations**. If you wish to pay electronically, the following information will assist you: BSB: **484-799**, Account No: **001227191**, Account name: **BOIC**, Bank: **Suncorp**, Reference: your membership no. and surname e.g. **234 Roberts.**

Butterfly and Other Invertebrates Club Inc.
PO Box 2113
RUNCORN Q. 4113

Next event – Visit to a Garden at Mitchelton, Sunday 19th October 2008, see Programme for details